

Application Ser. No. 10/025,629  
Preliminary Amendment filed with Request for Continued Examination

### **REMARKS**

This amendment is offered in further support of the patentability of claims 5-12, 23, and 25-26, now pending in this application.

Submitted herewith is a Declaration of S. Steven Carl following up on the interview previously granted by Examiner Chaudhry. The Declaration and tests support the criticality of the claimed pH range of about 2 to 2.2. Main claim 26 has also been amended to require maintenance of the critical pH range and monitoring it during cleaning to effect a cleaned pipe without damaging the aluminum piping. As emphasized in the disclosure of this application at page 6, lines 14-17, it is important to maintain the acidic cleaning solution in accordance with the method and to monitor it to achieve the pH level to effectively clean the pipe section. It has been found with the pipe sections that are uniquely constructed onboard ships that the aluminum piping may be damaged because of an uncontrolled acidic cleaning solution. At the same time, applicants have found that the acidic solution must be acidic enough in order to rid the sections of the marine life blockage. Applicants have found that a critical pH range of about 2 to 2.2 is required to achieve the objectives of the invention. The Declaration of Mr. Carl submitted herewith further supports applicants' position and is offered in favor of patentability of pending claims. This is consistent with the presentation made by Mr. Carl at the interview with Examiner Chaudhry.

None of the prior art of record suggests or renders obvious applicants' claims. Previous independent claim 26 was rejected under 35 USC §103 as being unpatentable over Perry et al in view of WO-00306, Connelly, Jr., Anderson and

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Edstrand et al. Present claim 26 and dependent claims will be considered as subject to the same rejection. Reconsideration of the rejection under 35 USC §103 is respectfully requested for the following reasons.

It is first necessary to place the invention in proper perspective and, for this purpose, claim 26 is reproduced for convenience hereinafter with claim language highlighted in bold type to emphasize patentable differences over the references cited.

26. A method for chemically cleaning a **countermeasure washdown system containing marine scale on board ships comprising**

**isolating a section of piping in the countermeasure washdown system for the delivery of a cleaning solution, wherein said section includes a plurality of washdown spray nozzles and aluminum piping,**

**inactivating said spray nozzles by removing and replacing them with temporary fittings,**

**configuring the isolated section into a closed loop by using connectors between (a) an end of the section and a manifold, (b) the manifold and a pump, and (c) the pump and a source of cleaning solution,**

**wherein the connectors comprise a plurality of hoses which connect said temporary fittings to said manifold for circulation of cleaning solution through the isolated section in said closed loop,**

**introducing an acid cleaning solution having a pH of about 2 to about 2.2 into the section,**

**monitoring and maintaining said pH during cleaning of said section to effectively produce the cleaned section without damage to the aluminum piping.**

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**circulating** the cleaning solution through the section in said closed loop to remove said marine scale and sediment from the interior of the section,

**removing** the cleaning solution containing the marine scale and sediment from the section to provide a cleaned interior section, and

**restoring** the cleaned section with the system.

The highlighted words of main method claim 26 are nowhere to be found or suggested in any of the references cited by the Examiner. The Examiner's main reference is to Perry et al which is owned by the assignee of this invention and cited in the Background of the Invention. Perry et al is simply directed to cleaning a potable waterpipe distribution system. Perry et al is not directed to cleaning a countermeasure washdown system onboard ships. Furthermore, admittedly, Perry et al fails to disclose spray nozzles, their removal and inactivation, a system where there is aluminum piping, a plurality of hoses and connectors for connecting temporary fittings to a manifold and controllably introducing and maintaining an acid cleaning solution having a pH of about 2 to about 2.2 in the section. In other words, Perry is totally deficient with respect to the highlighted language of claim 26, upon which applicants base patentability.

WO-00306 is equally deficient. As admitted by the Examiner, it fails to disclose chemically cleaning a countermeasure washdown system, nor does it disclose the cleaning solution having a pH which does not adversely affect the aluminum piping of the pipe section of the system. This reference

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also fails to teach a plurality of washdown spray nozzles and a method for inactivating them by removing or replacing them with temporary fittings. Still further, this reference does not disclose configuring the pipe section into a closed loop by using connectors comprising a plurality of hoses to connect the temporary fittings to the manifold. This reference simply makes passing reference to fire fighting facilities and does not disclose any activity with respect to the nozzles of such a facility, if indeed any are provided.

Connelly, Jr. is cited to show that a shower head is removed and capped, but of what relevance is this to the many steps and words differentiating main claim 26 over the references cited? It is respectfully submitted that Connelly, Jr. is simply irrelevant. None of the method steps are evident or suggested by Connelly, Jr.

Anderson is cited as disclosing an acid cleaning solution having a pH of 1.7 to 7 to remove deposits from a water plant boiler, but again Anderson's disclosure has no bearing upon the plural method steps of cleaning a countermeasure washdown system as highlighted above in independent claim 26. Furthermore, Anderson does not teach the critical pH range of 2 to 2.2 to rid aluminum pipe of marine scale.

Finally, Edstrand et al is relied upon by the Examiner because he states that none of the references cited above, namely Perry et al, WO-00306, Connelly Jr. and Anderson disclose a mobile unit. Edstrand et al, which has also been cited in the Background of this invention, discloses a mobile cleaning

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unit as urged by the Examiner. However, the Examiner's attention is called to the fact that claim 26 is not directed to a mobile cleaning unit! Rather, as specified above, independent claim 26 is directed to cleaning a countermeasure washdown system onboard a ship.

As set forth at pages 2-4 of this specification, those prior art patents cited by the Examiner and the applicants herein do disclose methods for cleaning other types of pipe systems. However, in the case of countermeasure washdown systems, the cleaning task is very difficult because of all the bends and turns, vertical and horizontal positioning of the pipe in various sections of the system. In addition, aluminum piping and other aluminum fabrications are used above deck on ships to decrease the weight of the vessel and increase the stability of the ship to lower its center of gravity. The aluminum piping systems and the degree of bends and turns all add to the challenge of cleaning to maintain operational readiness of the system for deployment. It is imperative that the chemical, biological and radiological washdown system be a 100% operational design. Therefore, the washdown system must be maintained with no blockages to reduce the design flows of the system. In the past, high pressure air or water jets have been used to blast blockages from piping systems. This is difficult because of all the bends, turns and positioning of the piping configuration. Moreover, mechanical cleaning with snakes or augers is also difficult and can be used only in straight runs. In addition, high pressure air, water jet and mechanical cleaning require almost complete dismantling of

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the system to create access for cleaning. Such dismantling requires extended periods of unacceptable down-time for the system and the ship.

Accordingly, applicants have for the first time provided an effective method for cleaning a countermeasure washdown system onboard a ship. Main claim 26, as highlighted above, specifies the method and its various steps which are totally missing in the disclosure of the patents being cited by the Examiner. The method involves isolating a section of the system by inactivating the spray nozzles and using them to form a closed loop by replacing them with temporary fittings which are connected by hoses to the manifold. This allows cleaning solution to be circulated through the isolated section. That cleaning solution does not adversely effect aluminum piping of the countermeasure washdown system because it has a pH of about 2 to 2.2. The isolated section is configured into a closed loop by using connectors, manifold and pump where the connectors comprise a plurality of hoses which connect the temporary fittings to the manifold for circulation in the closed loop, removal of scale and sediment and cleaning solution, before restoring the cleaned section to operational readiness.

The Declaration of Mr. Carl and evidentiary tests support the criticality of the pH range in main claim 26. It also supports the unobviousness of the claimed method. The Declaration is incorporated herein by reference in support of the patentability of pending claims.

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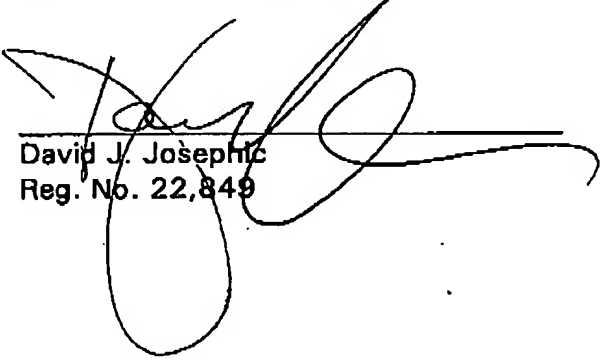
### **CONCLUSION**

In view of the above reasons, reconsideration and allowance of main claim 26 and claims 5-12, 14, 23 and 25 which depend therefrom is respectfully requested.

If any further issue arises with respect to this application, the Examiner is encouraged to contact the undersigned attorney.

Respectfully submitted,

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